

Name: _____
PC: Synthetic Division of Polynomials

Date: _____

Do Now:

1. Use long division to divide: $(2x^3 - 9x^2 + 10x - 7) \div (x - 3)$

Model 1: Use synthetic division to find the quotient and remainder.

$$(2x^3 - 9x^2 + 10x - 7) \div (x - 3)$$

Exercises: Use synthetic division to find the quotient and remainder.

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|--|--|
| 1. $(x^3 - 2x^2 - 5x + 6) \div (x - 3)$ | 2. $(x^3 - x^2 - 5x + 2) \div (x + 2)$ |
| 3. $(2x^3 + x^2 - 3x + 7) \div (x + 1)$ | 4. $(3x^3 - 2x^2 + x - 1) \div (x - 1)$ |
| 5. $(x^4 - 3x^3 + 7x^2 - 2x + 1) \div (x + 2)$ | 6. $(2x^4 - 3x^2 + 4x - 2) \div (x - 1)$ |
| 7. $(3x^4 + x^3 - 2x + 3) \div (x + 1)$ | 8. $(x^3 - 27) \div (x - 3)$ |
| 9. $(x^4 - 16) \div (x - 2)$ | 10. $(-\frac{1}{3}x^4 + \frac{1}{6}x^2 - 7x - 4) \div (x + 3)$ |

Model 2. Use synthetic division to find the quotient and remainder.

$$(2x^3 - 7x^2 + 8x + 6) \div (2x - 3)$$

Exercises: Use synthetic division to find the quotient and remainder.

11. $(6x^3 - 5x^2 - 3x + 4) \div (2x - 1)$

12. $(10x^3 - 3x^2 + 4x + 7) \div (2x + 1)$

13. $(6x^3 + 7x^2 + x + 8) \div (2x + 3)$

14. $(9x^4 + 6x^3 - 4x + 5) \div (3x - 1)$

15. $(x^2 + 5 + 6x^3 - 12x) \div (3x - 4)$

16. $(4x^3 - 2x + 2x^2 - 3) \div (2x + 1)$

17. $(15x^7 - x^6 + 8x^5 + 21x^4 - 9x^2 - 8x + 4) \div (5x - 2)$